

Date: Fri, 3 Jun 94 04:30:31 PDT  
From: Ham-Homebrew Mailing List and Newsgroup <ham-homebrew@ucsd.edu>  
Errors-To: Ham-Homebrew-Errors@UCSD.Edu  
Reply-To: Ham-Homebrew@UCSD.Edu  
Precedence: Bulk  
Subject: Ham-Homebrew Digest V94 #149  
To: Ham-Homebrew

Ham-Homebrew Digest                      Fri, 3 Jun 94                      Volume 94 : Issue 149

Today's Topics:

                                Cheap 6M FM?  
    Getting a VFO on-frequency (W1FB Design NB p. 111) (2 msgs)  
        Help needed for external 22AT power  
    Looking for GE UHF MVP radios (407-420MHz or 450-470MHz)  
        Repeater linking, what radios?  
    Transmitting Tube Cooling, Summary (2 msgs)  
        unsubscribe  
        VCO schematic 430MHz  
    what is Techno Whizzy DDS? (2 msgs)

Send Replies or notes for publication to: <Ham-Homebrew@UCSD.Edu>  
Send subscription requests to: <Ham-Homebrew-REQUEST@UCSD.Edu>  
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Homebrew Digest are available  
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-homebrew".

We trust that readers are intelligent enough to realize that all text  
herein consists of personal comments and does not represent the official  
policies or positions of any party. Your mileage may vary. So there.

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Date: 3 Jun 1994 02:49:46 GMT  
From: korie!newsworthy.West.Sun.COM!abyss.West.Sun.COM!spot!myers@ames.arpa  
Subject: Cheap 6M FM?  
To: ham-homebrew@ucsd.edu

In article 2@cs.cmu.edu, tew+@cs.cmu.edu (Thomas Warfel) writes:  
>Radio Shack sells OEM'ed Maxon 49MHz FM 5 channel (15 kHz spacing)  
>walkie-talkies for around \$50. Has anyone successfully retuned one  
>of these to work 6 meter duplex (either 500KHz or 1MHz split)?  
>  
> -Tom, KA8HML  
> tew+@cs.cmu.edu  
>

Not likely. This HT, a nicely done piece of work at \$40, uses a cordless phone PLL chip which doesn't appear to lend itself well to 6m operation.

The less expensive xtal controlled HT, however, is easily modified for 6m, so I'm told.

I bought the service manuals for both of them (I own both), and plan to experiment with them. The T/R switch on them is nothing. The transmitter, with a specified output power of around 10mW, simply drives the common base front end along with the antenna. There is a choke in series with the short antenna, all designed to provide a legal Part 15 field strength. Doesn't look too hard to boost to higher power levels for amateur use, but a real T/R switch is required and the spectral purity is suspect.

Maybe I'll just use them as an IF for a transverter project...

---

\* Dana H. Myers KK6JQ, DoD#: j | Views expressed here are  
\*  
\* (310) 348-6043 | mine and do not necessarily \*  
\* Dana.Myers@West.Sun.Com | reflect those of my employer  
\*  
\* This Extra supports the abolition of the 13 and 20 WPM tests \*

-----  
Date: 2 Jun 1994 13:07:48 GMT  
From: ihnp4.ucsd.edu!usc!howland.reston.ans.net!usenet.ins.cwru.edu!po.cwru.edu!  
sct@network.ucsd.edu  
Subject: Getting a VFO on-frequency (W1FB Design NB p. 111)  
To: ham-homebrew@ucsd.edu

Thanks for the suggestions. I already fiddled with the winding spacing and that improved it by about 400-500 KHz. (It's hard to tell exactly, since I'm using an oscilloscope to measure frequency by comparing the VFO output to a 7 MHz crystal oscillator.)

The idea of replacing the tank capacitor with a trimmer is a good one. I'll try pulling a couple windings off the inductor first, I guess. It looks like I should lose 5, give or take 1.

Stephen

--

Stephen Trier  
sct@po.cwru.edu  
KG8IF

-----  
Date: Thu, 2 Jun 1994 23:59:39 GMT  
From: ihnp4.ucsd.edu!swrinde!howland.reston.ans.net!usenet.ins.cwru.edu!eff!news.kei.com!ub!dsinc!netnews.upenn.edu!msuinfo!harbinger.cc.monash.edu.au!trlluna!titan!pcies4.trl.OZ.AU!drew@@.  
Subject: Getting a VFO on-frequency (W1FB Design NB p. 111)  
To: ham-homebrew@ucsd.edu

In article <2sj7f7\$soas@crl.crl.com> jeffj@crl.com (Jeff Jones) writes:  
>From: jeffj@crl.com (Jeff Jones)  
>Subject: Re: Getting a VFO on-frequency (W1FB Design NB p. 111)  
>Date: 1 Jun 1994 17:00:39 -0700  
>In article <2shtpu\$h0m@usenet.INS.CWRU.Edu> sct@po.cwru.edu (Stephen C. Trier) writes:  
>>The current problem is that the VFO insists on operating around 5.5 MHz.  
>>I need it up around 7 MHz if this is going to be a 40m receiver. It's  
>>a JFET Hartley VFO with a 4.8 uH inductor tapped 1/4 of the way up for  
>>feedback, 100-125 pF of tank capacitance, and a 100 pF capacitor coupling  
>>the top of the tank circuit to the JFET gate. I'm using an MPF102 for  
>>the JFET. The circuit is built dead bug style.  
>>The values shown for the oscillator work out to 6.5 MHz to 7.25 MHz if I  
>>ignore the 100 pF gate capacitor. How much is that capacitor going to  
>>pull the frequency?  
>  
>Have you tried spreading or squeezing the wires together on the inductor?  
>I think he mentions somewhere in his book that you might have to do that.  
>Hope this helps!  
>  
>Jeff  
>  
>--  
>Jeff Jones AB6MB  
>jeffj@crl.com  
>

Squeezing or stretching the turns only gives a small (but sometimes useful) variation on frequency. With the values indicated; the oscillator should be working above 6.5MHz- so something is wrong. Is the coil indeed 4.8uH? Perhaps it is something more like 8.2uH? The 100pF gate coupling capacitor seems a little large. At 7MHz a value like 3.9 or 4.7pF is more usual (lighter loading of the tank). And (this may start an argument) leave out that useless little diode at the gate- it does no good that I can see, and sometimes causes a deterioration in output and stability.

A handy formula for tank circuit work (particularly VFO tanks) is:

$L = 25330 \text{ divided by } (FMHz \text{ SQD } \times CpF)$

and

$C = 25330 \text{ divided by } (FMHz \text{ SQD } \times LuH).$

and by transposing for F:

$F = SQ \text{ RT of } [25330 \text{ divided by } (LuH \times CpF)].$

73, Drew, VK3XU. Telecom Australia Research Laboratories.

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Date: 2 Jun 94 10:27:38 CST  
From: ihnp4.ucsd.edu!usc!howland.reston.ans.net!spool.mu.edu!news.clark.edu!  
netnews.nwnet.net!ns1.nodak.edu!news.uoknor.edu!news.ualr.edu!eivax.ualr.edu!  
heiss@network.ucsd.edu  
Subject: Help needed for external 22AT power  
To: ham-homebrew@ucsd.edu

In article <1994May26.215242.15420@sue.cc.uregina.ca>, mmurray@leroy.cc.uregina.ca  
(Mike Murray) writes:

> My Kenwood 22AT has only one external power input jack located on  
> the side of the radio. Kenwood supplies a 12.5V 70ma adapter to  
> use with the unit. The adapter charges the battery but does not  
> have enough current to transmit with. I am planning on building  
> a simple 12V 3A power supply to used with the radio. My concern is  
> that I will be over charging the internal 6Volt 600ma battery.  
> Should I be removing the battery when using an external high current  
> power supply? Kenwood does not show a external AC power supply as  
> an option for this radio, but they do have a car adapter- which  
> could cause overcharging of the battery. Kenwood recommends a max  
> of 15 hours using the 12.5V 70ma charger.

>  
> Any suggestions?  
>  
> Thanks in Advance.

>  
> Mike Murray  
> mmurray@leroy.cc.uregina.ca  
> VE5EF

--

Hi Mike:

When using an external power supply you must disconnect the batteries

. Whether you actually remove the batteries or install a switch to select battery or power supply operation is up to you.

The only over-charging side effect I'm sure of is drastically shortend battery life. I believe that they could also leak or explode.  
Good Luck.

\*\*\*\*\*  
Larry Heiss: BS, Computer Engineering Technology  
University of Arkansas @ Little Rock  
Laser Applications Lab  
e-mail heiss@ualr.edu  
call: KC5CVL  
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Date: 3 Jun 1994 01:08:21 GMT  
From: ihnp4.ucsd.edu!usc!nic-nac.CSU.net!charnel.ecst.csuchico.edu!olivea!ncd.com!  
newshost.ncd.com!hansen.ncd.com!phil@network.ucsd.edu  
Subject: Looking for GE UHF MVP radios (407-420MHz or 450-470MHz)  
To: ham-homebrew@ucsd.edu

I am looking to put a full-duplex link up between two of my 1.2 GHz repeaters.

Does anyone have a source for GE UHF MVP radios?

The link would be in the 420-430 link band.

I understand that there are two versions of the MVP that might work. One is for the 407-420 MHz band and the other is 450-470 MHz band. Although the 450/470 version may take more tuning to get it down to 420-430 area.

Anyone have a line on these radios?

Thanks!

Phil  
de KJ6NN

P.S. I like the MVP since it is small enough to fit into the tight rack space that I have at the repeater site

email: phil@ncd.com  
packet: kj6nn@n0ary-1  
FAX: 408-262-4593  
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Date: Thu, 2 Jun 94 19:54:27 -0500  
From: news.delphi.com!usenet@uunet.uu.net  
Subject: Repeater linking, what radios?  
To: ham-homebrew@ucsd.edu

Ok I have put together a system like you want. One way to do this cheap is to use Motorola Micors. Get a Micor pull out the VHF receiver build a 9.6 reg. an an audio interface board add a CW ID and feed this to a Motorola Mocom 10 UHF Tx and buy yourself a dual band Vert. and you have a remote.

At the repeater put up a UHF beam and take a Micor for UHF and build a 9.6 reg. and feed this to the Hall unit and you will have a great system.

I am still working on the audio it is too sharp but in time we will work it out. good luck.

-----  
Date: Wed, 1 Jun 1994 19:49:57 GMT  
From: ihnp4.ucsd.edu!usc!howland.reston.ans.net!europa.eng.gtefsd.com!  
darwin.sura.net!jabba.ess.harris.com!mlb.semi.harris.com!controls.ccd.harris.com!  
drs@network.ucsd.edu  
Subject: Transmitting Tube Cooling, Summary  
To: ham-homebrew@ucsd.edu

Thanks for the responses on my request for ideas on measuring air flow around a transmitting tube, or otherwise protecting it from too much heat.

1. Several mentioned the manometer, a "U" shaped piece of tubing or glass that contained water. When inserted in the chamber of air flow, the change in water height indicated the pressure.
2. One mentioned that the people at Eimac used to put ribbons on the exhaust of the air system socket and make sure the ribbons blew straight up.....
3. The idea I like the best is the use of temperature sensitive paint on the base of the tube. It was recommended that a few temperature ranges be painted on the base. The tube specs have the max. allowable base seal temp. All I need to do now is find a source.

73's Doug

--

-----  
| Doug Snowden |  
| N4IJ |  
email: drs@ccd.harris.com

Date: 2 Jun 1994 10:55:35 -0700  
From: ihnp4.ucsd.edu!swrinde!howland.reston.ans.net!europa.eng.gtefsd.com!  
news.umbc.edu!eff!news.kei.com!ssd.intel.com!chnews!ornews.intel.com!  
ornews.intel.com!not-for-mail@network.ucsd.edu  
Subject: Transmitting Tube Cooling, Summary  
To: ham-homebrew@ucsd.edu

In article <1994Jun1.194957.19513@ccd.harris.com> drs@ccd.harris.com (Doug Snowden) writes:

>Thanks for the responses on my request for ideas on measuring air flow around  
>a transmitting tube, or otherwise protecting it from too much heat.

>3. The idea I like the best is the use of temperature sensitive paint on the  
> base of the tube. It was recommended that a few temperature ranges be  
> painted on the base. The tube specs have the max. allowable base seal temp.  
> All I need to do now is find a source.

When I used to work with induction heating equipment I found that the steel industry often uses temperature sensitive "crayons" which melt at various specific temperatures. These were for forging and annealing temperatures however, and I'm sure you don't want your transmitting tube bases glowing bright yellow. They may make lower temperature crayons as well. I'll see if I have some at home and determine the manufacturer if you wish.

--  
zardo@ornews.intel.com WA7LDV

-----  
Date: 2 Jun 94 13:04:39 GMT  
From: news-mail-gateway@ucsd.edu  
Subject: unsubscribe  
To: ham-homebrew@ucsd.edu

unsubscribe sltmw@cc.usu.edu  
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Date: Thu, 2 Jun 1994 21:11:46 GMT  
From: ihnp4.ucsd.edu!usc!howland.reston.ans.net!EU.net!sun4n1!news.nic.surfnet.nl!  
rug.nl!anko@network.ucsd.edu  
Subject: VCO schematic 430MHz  
To: ham-homebrew@ucsd.edu

Hi netters...

I'm looking for a good (ie. working) schematic for a VCO ranging from approx 430 MHz up till 500 MHz (70 cm amateur band). Maybe someone can post or mail me an example how to do this. The exact specs are not that important, just the idea how to build the thing.

Thanks a lot.

Anko

--

Anko Westers email: anko@chem.rug.nl

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Date: 2 Jun 94 11:02:50 CST  
From: ihnp4.ucsd.edu!sdd.hp.com!spool.mu.edu!news.clark.edu!netnews.nwnet.net!  
ns1.nodak.edu!news.uoknor.edu!news.ualr.edu!eivax.ualr.edu!heiss@network.ucsd.edu  
Subject: what is Techno Whizzy DDS?  
To: ham-homebrew@ucsd.edu

I have been following the stream on the Techno Whizzy DDS thinking  
Somewhere along the way someone would define DDS and some of the other  
nemonics used but no one did :(. I am quite familiar with PC interfacing  
and DAQ's (digital acquisition) but have no knowledge of spread spectrum or  
the terminology used for spread spectrum. If someone would post a brief  
explanation it would make me very happy :).  
Thanks in advance.

--

\*\*\*\*\*  
Larry Heiss  
University of Arkansas @ Little Rock  
Laser Applications Lab  
e-mail heiss@ualr.edu  
call: KC5CVL  
\*\*\*\*\*

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Date: 2 Jun 94 19:12:12 GMT  
From: sdd.hp.com!col.hp.com!srigenprp!alanb@hplabs.hpl.hp.com  
Subject: what is Techno Whizzy DDS?  
To: ham-homebrew@ucsd.edu

heiss@ualr.edu (heiss@ualr.edu) wrote:



: I have been following the stream on the Techno Whizzy DDS thinking  
: Somewhere along the way someone would define DDS and some of the other  
: nemonics used but no one did :(.

Not sure about the "Techno Whizzy" part, but "DDS" stands for  
"Direct Digital Synthesis."

A normal phase-locked loop (PLL) synthesizer uses a voltage-controlled oscillator (VCO) which is phase-locked to a high-stability crystal oscillator reference. To allow changing frequency, there is a programmable frequency divider between the VCO and the phase detector, so that the output frequency can be any integer times the reference frequency. For example, if the reference is 10 kHz, the VCO frequency can lock to N times 10 kHz.

A DDS synthesizer, on the other hand, generates the sine wave output signal directly using a digital-to-analog converter (DAC). The DAC output changes state at a rate much higher than the highest sine wave frequency desired. To get different frequencies, the DAC simply shortens or widens the width of the cycles it is outputting.

The advantages of DDS are very fast frequency switching and finer frequency resolution. The disadvantages are limited upper frequency range, complexity, and often poorer spurious performance.

So there's a few mnemonics to get you started, DDS, PLL, VCO, DAC...  
:=)

AL N1AL

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Date: 2 Jun 1994 15:24:21 GMT  
From: ihnp4.ucsd.edu!swrinde!pipex!uknet!doc.ic.ac.uk!aixssc.uk.ibm.com!  
watnews.watson.ibm.com!vinod@network.ucsd.edu  
To: ham-homebrew@ucsd.edu

References <77049530034n12@131.168.114.12>, <pschleck.770509187@cwis>,  
<2sj75p\$nj1@crl.crl.com>  
Reply-To : vinod@watson.ibm.com  
Subject : Re: QRP mailing list?

In article <2sj75p\$nj1@crl.crl.com>, jeffj@crl.com (Jeff Jones) writes:  
|>  
|> subscribe qrp or unsubscribe qrp to quit receiving it.  
|>

Or you can subscribe to the digest version, which is sent out

once daily, by using:

subscribe qrp-digest

--vinod

vinod@watson.ibm.com

-----  
Date: Wed, 1 Jun 1994 14:49:47 GMT  
From: nwnexus!jhgrud!eskimo!novatech@uunet.uu.net  
To: ham-homebrew@ucsd.edu

References <2sd787\$mgn@search01.news.aol.com>, <2se6pi\$kfg@herald.indirect.com>,  
<2sfmnc\$1pd@crl2.crl.com>c  
Subject : Re: Techno Whizzy DDS

jeffj@crl.com (Jeff Jones) writes:

>In article <2se6pi\$kfg@herald.indirect.com> patrick@indirect.com (Patrick Berry)  
>writes:

>>Ferraro14 (ferraro14@aol.com) wrote:

>>: Is anybody expirimenting with the techno whizzy dds or any other DDS.

>>

>>I'm building a PC-based DDS around the Qualcomm DDS - when I get the time

>>to work on it :( Board is designed and half wired.

>>

>>Pat

>>

>I really hope that you don't keep this all to yourself! 8-) I have wanted to  
>do one of those for quite a while. What has your costs been so far? How much  
>is the Qualcomm DDS and where did you get it? Thanks for any info you can  
>give me!

>Jeff

>AB6MB

I sell a couple of kits based upon the Qualcomm chip, including  
a PC-based one, so I am a bit biased.

I don't know what the low-quantity price is, but it should be  
around \$30 or so.

One thing about the 73 kit article: the DAC used is really used outside  
its spec range. Most of the parts will work fine, but use a spectrum  
analyzer to check your spurs.

I can make available postscript files of my kit schematics for anyone interested, send me email. The DAC I used is the Motorola MC10322P-- pretty good for the price. My current favorite is the Analog Devices AD9721, but it's pretty expensive for hobby use. The best inexpensive one (10-bits) seems to be the Analog Devices AD7128 at the moment.

--

Steven D. Swift, P.E. ( novatech@eskimo.com )  
NOVATECH INSTRUMENTS, INC.  
1530 Eastlake Avenue East, Suite 303

-----  
Date: 2 Jun 1994 11:57:58 GMT  
From: ihnp4.ucsd.edu!usc!math.ohio-state.edu!jussieu.fr!univ-lyon1.fr!  
elendir@network.ucsd.edu  
To: ham-homebrew@ucsd.edu

References <199405151130.EAA28370@ucsd.edu>,  
<Pine.3.89.9405181450.A18449-0100000@paul.spu.edu>,  
<dcon-250594142324@128.96.71.70>, ñ  
Subject : Re: Ham-Homebrew Digest V94 #129

Dan Connolly (dcon@cc.bellcore.com) wrote:  
: "Typical" European values for telephone set operating parameters are:

: Subscriber Loop Resistance 0 to 1300 Ohms

600 ohms MANDATORY is France.

: Loop loss

8 dB

: Ringing Signal

16 to 50 Hz, 40 to 130 V rms

: Another thing to think about is dialing. Dual Tone Multi-Frequency (Touch  
: Tone) dialing is not very common, even in some of the more advanced  
: countries. The pulse dialing in many countries is probably similar to the  
: U.S., but don't assume this is true everywhere.

Thanks ;-) We have been using DTMF since 10 years now. All the country has  
DTMF capability !!! We are not the third-world of telephony :-)

Vince, F1RCS

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End of Ham-Homebrew Digest V94 #149

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